

## **Bibliographie compostage des effluents d'élevage et émissions gazeuses**

- Abd El Kader N., Robin P., Paillat J.-M., Leterme P. 2007. Turning, compacting and the addition of water as factors affecting gaseous emissions in farm manure composting. *Bioresource Technology* 98, 2619-2628.
- Abiven, 2005. Relations entre caractéristiques des matières organiques apportées, dynamique de leur décomposition et évolution de la stabilité structurale du sol. Thèse de doctorat, ENSA, Rennes, 262 p.
- Amon, B., Amon, T., Boxberger, J., Pollinger, A., 1999. Emission of NH<sub>3</sub>, N<sub>2</sub>O and CH<sub>4</sub> from composted and anaerobically stored farmyard manure. 8<sup>th</sup> RAMIRAN Int. Conf. on Management Strategies for Organic Waste Use in Agriculture, Rennes, France, 26-29 May 1998, pp. 209-216.
- Andersson, 1996. Performance of bedding materials in affecting ammonia emissions from pig manure. *J. agric. Engng Res.* 65 (1), 213-222.
- ApSimon, H.M., Kruse, M., Bell, J.N.B., 1987. Ammonia emissions and their role in acid deposition. *Atmospheric Environment* 21 (9), 1939-1946.
- Beck-Friis, B., Smars, S., Jönsson, H., Kirchmann, H., 2001. Gaseous emissions of carbon dioxide, ammonia and nitrous oxide from organic household waste in a compost reactor under different temperature regimes. *J. agric. Engng Res.* 78 (4), 423-430.
- Béline F., Martinez J., 1997. Traitement aérobie des effluents d'élevage : le devenir des formes d'azote (N<sub>2</sub>, N<sub>2</sub>O, NO, NH<sub>3</sub>.....). *L'eau, l'industrie, les nuisances*, 207, 50-52.
- Béline, F., 2001. La traitement biologique aérobie du lisier de porc. Les transformations de l'azote et les émissions gazeuses polluantes. Cemagref (Ed). *Etudes équipements pour l'eau et l'environnement*, 26, 134 p.
- Berger A., 2000. La théorie de l'effet de serre. Louvain-la-Neuve, Belgique : Institut d'astronomie et de physique Georges Lemaître, 15 p.
- Burford, J.R., Bremner, J.M., 1975. Relationships between the denitrification capacities of soils and total water soluble and readily decomposable soil organic matter. *Soil Biol. Biochem.* 7, 389-394.
- Cabrera, M., Chiang, S., Merka W., Pancorbo, O., Thompson, S., 1994. Nitrous oxide and carbon dioxide emissions from pelletized and non pelletized poultry litter incorporated into soil. *Plant soil* 163, 189-196.
- Callarec, 1996. Le traitement du lisier par compostage, dix questions. *Atout porc*, janvier, mars, juillet 1996.
- Callarec, 1997. Le traitement du lisier par compostage, méthode Guernévez. Ed. *Chambre d'agriculture du Finistère*, 19 p.
- Chadwick, D.R., 2005. Emissions of ammonia, nitrous oxide and methane from cattle manure heaps: effect of compaction and covering. *Atmospheric Environment* 39 (1), 787-799.
- CIGR, 1984. Report of working group on climatization of animal houses. *Commission Internationale du Génie Rural, S.F.B.I.U., Aberdeen.*

- Collignon N., 2004. Etude de la dessiccation de produits fermentescibles. Mémoire de 2<sup>nd</sup>e année ingénieur, Ecole des Métiers de l'Environnement, Bruz, 45 p.
- Comont L., 2002. Relation entre l'émission ammoniacale d'un compost et la teneur en azote ammoniacal du produit initial. Mémoire de DEA National de Science du sol, Institut National Polytechnique de Lorraine, Nancy, 20 p.
- Coyne, M., 1999. Soil microbiology: an exploratory approach. Delmar Publishers, 462 p.
- Czepiel, P., Douglas, E., Harris, R., Crill, P., 1996. Measurement of N<sub>2</sub>O from composted organic wastes. Environ. Sci. Technol. 30 (8), 2519-2525.
- Day, M., Shaw, K., 2001. Biological, chemical and physical processes of composting. In: P.J. Stoffella and B.A. Kahn (Eds.), Compost utilization in horticultural cropping system, Lewis Publishers, 17-50.
- Dulphy, J.P., Demarquilly, C., 1981. Problèmes particuliers aux ensilages. In: Prévision de la valeur nutritive des aliments des ruminants, Ed. INRA publications, Versailles, 81-104.
- EDE-Bretagne, 1998. Compostage selon la méthode Guernévez. Mesure des pertes d'ammoniac pendant la phase de compostage actif. Ed. Chambres d'Agriculture de Bretagne, 5 p.
- Eghball, B., Power, J.F., Gilley, J.E., Doran, J.W., 1997. Nutrient, carbon, and mass loss during composting of beef cattle feedlot manure. J. Environ. Qual. 26, 189-193.
- Ekinci, K., Keener, H.M., Elwell, D.L., 2000. Composting short paper fiber with broiler litter and additives. Part I: effects of initial pH and carbon/nitrogen ratio on ammonia emission. Compost Science and Utilization 8 (2), 160-172.
- Ekinci, K., Keener, H.M., Elwell, D.L., Michel, F.C., 2004. Effects of aeration strategies on the composting process: Part I. Experimental studies. Transactions of the ASAE 47 (5), 1697-1708.
- Eklind, Y., Kirchmann, H., 2000. Composting and storage of organic household waste with different litter amendments. I: carbon turnover. Bioresource Technology 74 (1), 115-124.
- Eklind, Y., Kirchmann, H., 2000. Composting and storage of organic household waste with different litter amendments. II: nitrogen turnover and losses. Bioresource Technology 74 (1), 125-133.
- Espagnol S., Hassouna M., Robin P., Levasseur P., Paillat J.-M., 2006 (*com. orale*). Emissions gazeuses (NH<sub>3</sub>, N<sub>2</sub>O, CH<sub>4</sub>) au stockage, avec et sans retournement, de fumier porcin provenant d'une litière accumulée. 38<sup>èmes</sup> Journées de la recherche porcine, ITP-INRA, Paris, 31/01-02/02. 2006. Journées Recherche Porcine, 38 41-48.
- Fangmeier, A., Hadwiger-Fangmeier, A., Van der Eerden, L., Jäger, H.J., 1994. Effects of atmospheric ammonia on vegetation – A review. Environmental Pollution 86 (1), 43-82.
- Fukumoto, Y., Osada, T., Hanajima, D., Haga, K., 2003. Patterns and quantities of NH<sub>3</sub>, N<sub>2</sub>O and CH<sub>4</sub> emissions during swine manure composting without forced aeration - effect of compost pile scale. Bioresource Technology 89 (1), 109-114.

- Génermont S., 1996. Modélisation de la volatilisation d'ammoniac après épandage de lisier sur parcelles agricoles. PhD thesis, INA Paris-Grignon, 331 p.
- Golueke, C.G., 1973. Composting – A study of the process and its principles. Rodale press, Emmaus, Pennsylvania.
- Hassouna M., Espagnol S., Robin P., Paillat J.-M., Li Y. Monitoring NH<sub>3</sub>, N<sub>2</sub>O and CH<sub>4</sub> emission during pig solid manure storage: effect of turning. *Compost Science and Utilization* (soumis).
- Hassouna M., Paillat J.-M., Robin P., 2007 (*com. orale + poster*). Predicting ammonia and carbon dioxide emissions from carbon and nitrogen biodegradability during animal waste composting. 1 p.p. International Ammonia Conference in Agriculture, 19-21 March 2007, Ede, Netherlands. -s.I.:s.n., 2007.
- He, Y., Inamori, Y., Mizuochi, M., Kong, H., Iwami, N., Sun, T., 2000. Measurements of N<sub>2</sub>O and CH<sub>4</sub> from the aerated composting of food waste. *The Science of the Total Environment* 254 (1), 65-74.
- Hellebrand, H.J., 1998. Emission of nitrous oxide and other trace gases during composting of grass and green waste. *Journal of Agricultural Engineering Research*, Vol. 69, N° 4, 365-375.
- Hellmann, B., Zelles, L., Palojarvi, A., Bai, Q., 1997. Emission of climate-relevant trace gases and succession of microbial communities during open-windrow composting. *Applied and Environmental Microbiology* 63 (3), 1011-1018.
- Houghton, J.T., Ding, Y., Griggs, D.J., Noguer, M., Van der Linden, P.J., Dai, X., Maskell, K., Johnson, C.A., 2001. Climate change 2001: the scientific basis. Report of the IPCC working group I.
- Hwang, S., Hanaki, K., 2000. Effects of oxygen concentration and moisture content of refuse on nitrification, denitrification and nitrous oxide production. *Bioresource Technology* 71, 159-165.
- IPCC, 2003. [http://www.ipcc-nggip.iges.or.jp/EFDB/find\\_ef.php](http://www.ipcc-nggip.iges.or.jp/EFDB/find_ef.php), 9th of December 2003.
- Jäckel, U., Thummes, K., Kämpfer, P., 2004. Thermophilic methane production and oxidation in compost. *FEMS Microbiology Ecology*, in press.
- Kermarrec C., Robin P., 2002. Emissions de gaz azotés en élevage de porcs sur litière de sciure. *Journées de la Recherche Porcine*, n°34, Communication, 155-160.
- Kirchmann, H., 1985. Losses, plant uptake and utilisation of manure nitrogen during a production cycle. *Acta Agriculturae Scandinavica. Supplementum No. 24*.
- Kirchmann, H., Lundvall, A., 1998. Treatment of solid manure: identification of low NH<sub>3</sub> emission practices. *Nutrient Cycling in Agroecosystems* 51, 65-71.
- Kirchmann, H., Witter, E., 1989. Ammonia volatilization during aerobic and anaerobic manure decomposition. *Plant and Soil* 115 (1), 35-41.
- Kroeze, C., 1994. Nitrous oxide and global warming. *The Science of The Total Environment* 143 (2-3), 193-209.

- Kuroda, K., Takashi, O., Mitihiro, Y., Akane, K., Takako, N., Sigenori, M., Tomoko, K., 1996. Emissions of malodorous compounds and greenhouse gases from composting swine feces. *Bioresource technology* 56, 265-271.
- Liang, Y., Leonard, J.J., Feddes, J.J., McGill, W.B., 2004. A simulation model of ammonia volatilization in composting. *Transactions of the ASAE* 47 (5), 1667-1680.
- Lipschultz, F., Zafirious, O.C., Wofsy, S.C., McElroy, M.B., Valois, F.W., Watson, W.W., 1981. Production of NO and N<sub>2</sub>O by soil nitrifying bacteria. *Nature* 294, 641-643.
- Lung A.J., Lin C.-M., Kim J.M., Marshall M.R., Nordstedt R., Thompson N.P., Wei C.I., 2001. Destruction of *Escherichia coli* O157:H7 and *Salmonella* Enteritidis in cow manure composting. *Journal of food protection*, vol. 64, N°9, pp 1309-1314.
- Luth, 2003. Etude de l'influence de la dégradabilité du carbone d'effluents d'élevage sur les émissions gazeuses durant le compostage. Mémoire de DEA National de Science du sol, ENSAR, UMR SAS, Rennes, 28 p.
- Mancinelli, R.L., 1992. Nitrogen cycle. *Encyclopedia of Microbiology* vol.3, 229-237.
- Martinez J., Moal J. F., Caudal M. C., Guiziou F., 1996. Emission d'ammoniac après épandage de lisier : quantification et maîtrise. *Ingénieries EAT*, 3 (5), 43-52.
- Martins, O., Dewees, T., 1992. Loss of nitrogenous compounds during composting of animal wastes. *Bioresource Technologie* 42 (1), 103-111.
- Matsuda, J., Maeda, T., Ohmiya, K., 2002. Ammonia emissions from composting of livestock manure. Takahashi, J. and Young, B.A. (Eds.), *Proceedings of the 1<sup>st</sup> International conference on greenhouse gases and animal agriculture*. Obihiro, Japan, 7-11 November.
- Mazé J., Melec D., Théobald O., 1996. Le compostage du lisier de porc sur différents supports carbonés et selon deux modes d'aération. *Journées Rech. Porcine en France*, 28, 231-240.
- Moal J.F., Martinez J., 1995. Emission d'ammoniac après épandage de lisier : le problème. *Ingénieries-EAT* n°1 :53-60.
- Moller H.B., Sommer S.G., Andersen B.H., 2000. Nitrogen mass balance in deep litter during the pig fattening cycle and during composting. *Journal of Agricultural Science, Cambridge*, 135, 287-296.
- Morand P., Perez G., Robin P., Yulipriyanto H., Baron S., 2004. Gaseous emissions from composting poplar bark-poultry dung mixtures : a field approach. *Compost science and utilization* (accepté).
- Morvan, T., Dach, J., Parnaudeau, V., 2001. Relationships between biochemical composition of manure and composts and their carbon and nitrogen transformation in soil. 11<sup>th</sup> Nitrogen Workshop, Reims, 9-12 sep. 2001, 153-154.
- Mustin, M. 1987. *Le compost, gestion de la matière organique*. Edition François Dubusc, Paris.

- Paillat J.-M., 2001. Effet du compostage d'effluents porcins sur les émissions gazeuses et les teneurs en éléments polluants. Evaluation ex-ante de l'action de recherche 42c, GIS Porcherie Verte, 9 p.
- Paillat J.-M., 2002. Effet du compostage d'effluents porcins sur les émissions gazeuses et les teneurs en éléments polluants. Rapport convention ADEME-INRA 2001, GIS Porcherie Verte, UMR SAS, Rennes, 6 p.
- Paillat J.-M., Hassouna M., Robin P., 2006. Abattements d'azote lors du compostage de fumier de vaches laitières : exemple de cinq élevages des Côtes d'Armor. Rapport d'étude pour le CORPEN, UMR SAS, Rennes, 11 p.
- Paillat J.M., Robin P., Comont L., 2002. Effet du compostage d'effluents porcins sur les émissions gazeuses et les teneurs en éléments polluants. Rapport d'avancement action 42c, actes du séminaire, GIS Porcherie Verte (ed), 4-5 sept. 2002, La Rochelle (F), pp 99-103.
- Paillat J.-M., Robin P., Hassouna M., 2004. Bilan environnemental du procédé de compostage de lisier de porc sur paille suivant la méthode Guernévez®. Rapport intermédiaire convention ADEME-INRA 0375C0077, GIS Porcherie Verte, UMR SAS, Rennes, 34 p.
- Paillat J.-M., Robin P., Hassouna M., 2004. Effet du compostage d'effluents porcins sur les émissions gazeuses - Influence de la dégradabilité du carbone et de l'azote sur les émissions de gaz carbonique et d'ammoniac. Rapport action 42c, GIS Porcherie verte, convention ADEME-INRA 0275040, 22 p.
- Paillat J.-M., ROBIN P., Hassouna M., Callarec J., Toularastel P., 2005. Environmental assessment of composting pig slurry with wheat straw based on the Guernévez® process. International Workshop on Pork Production "Porcherie Verte", A research Initiative on Environment-Friendly Pig Production, Paris, France, 25-27 May 2005.
- Paillat J.-M., Robin P., Hassouna M., LETERME P., 2005. Effet du compostage d'effluents porcins sur les émissions gazeuses et les teneurs en éléments polluants. Rapport final convention ADEME-INRA 0375C0077, GIS Porcherie Verte, UMR SAS, Rennes, 106 p.
- Paillat J.-M., Robin P., Hassouna M., Leterme P., 2005. Predicting ammonia and carbon dioxide emissions from carbon & nitrogen biodegradability during animal waste composting. International Workshop on Pork Production "Porcherie Verte", A research Initiative on Environment-Friendly Pig Production, Paris, France, 25-27 May 2005.
- Paillat, J.-M., Robin, P., Hassouna, M., Leterme, P., 2005. Predicting ammonia and carbon dioxide emissions from carbon & nitrogen biodegradability during animal waste composting. *Atmospheric Environment* 39, 6833-6842.
- Peigné, J., Girardin, P., 2004. Environmental impacts of farm-scale composting practices. *Water, Air, and Soil Pollution* 153 (1), 45-68.
- Pel, R., Oldenhuis, R., Brand, W., Vos, A., Gottschal, J.C., Zwart, K.B., 1997. Stable-isotope analysis of a combined nitrification-denitrification sustained by thermophilic methanotrophs under low-oxygen conditions. *Applied and Environmental Microbiology* 63 (2), 474-481.
- Petersen, S.O., Lind, A.M., Sommer, S.G., 1998. Nitrogen and organic matter losses during storage of cattle and pig manure. *J. Agric. Sci.* 130, 69-79.

- Robin P., Hassouna M., Ramonet Y., Texier C., 2004a. Maîtrise des émissions gazeuses en bâtiments sur litière (validation en élevages des résultats acquis en conditions climatiques contrôlées). Rapport Final, convention MAAPAR / INRA, action de recherche 41b Porcherie verte, 106 p.
- Robin, D., 1997. Intérêt de la caractérisation biochimique pour l'évaluation de la proportion de matière organique stable après décomposition dans le sol et la classification des produits organominéraux. *Agronomie* 17 (1), 157-171.
- Robin, P., Hassouna, M., Texier C., 2004b. Emission d'ammoniac et de protoxyde d'azote des porcs engraisés sur litière de paille, 2004. Journées de la recherche porcine en France, 36.
- Rynk, R., 1992. On farm Composting Handbook. Robert Rynk Ed., NRAES, n°54 public., 186 p.
- Sanchez-Monedero, M.A., Roig, A., Paredes, C., Bernal, M.B., 2001. Nitrogen transformation during organic waste composting by the Rutgers system and its effects on pH, Ec and maturity of the composting mixtures. *Bioresource Technology* 78, 301-308.
- Schenk, M.K., Appel, S., Daum, D., 1997. N<sub>2</sub>O emission during composting of organic waste. R.U. Roeber (Ed.), International symposium on Growing Media and Plant Nutrition, *Acta Horticultura*, 253-261.
- Schlegel, H.G., 1993. General microbiology. 7<sup>th</sup> ed., Cambridge University Press, New York.
- Shi, W., Norton, J.M., Miller, B.E., Pace, M.G., 1999. Effects of aeration and moisture during windrow composting on the nitrogen fertilizer values of dairy waste composts. *Applied Soil Ecology* 11 (1), 17-28.
- Singley, M., Higgins, A.J., Franklin-Rosengaus, M., 1982. Sludge composting and utilization – A Design and Operating manual. Agricultural Experimental Station, Rutgers University, New Brunswick, New Jersey.
- Sommer, S.G., 2001. Effect of composting on nutrient loss and nitrogen availability of cattle deep litter. *European Journal of Agronomy* 14 (1), 123-133.
- Sommer, S.G., Møller, H.B., 2000. Emission of greenhouse gases during composting of deep litter from pig production – effect of straw content. *J. of Agricultural Science, Cambridge* 134 (1), 327-335.
- Souloumiac, D., Itier, B., 1989. Prise en compte des phénomènes de chaleur latente dans la ventilation. *C.R. Acad. Sci., série 11, Tome 308, n° 3*, 269-274.
- Thomsen, I.K., 2000. C and N transformations in <sup>15</sup>N cross-labelled solid ruminant manure during anaerobic and aerobic storage. *Bioresource Technology* 72, 267-274.
- Tricot, G., Aubert, C., Robin, P., Bline, D., 2000. Maîtrise des émissions azotées lors du compostage de fumier de volailles. *Sciences et Techniques Avicoles* 31, 25-31.
- van der Werf, P., Ormseth, J., 1997. Measuring process parameters at an enclosed composting facility. *Biocycle* 38 (5), 58-61.

- Van Soest P.J., Wine R.H., 1967. Use of detergents in the analysis of fibrous feeds. IV – Determination of plant cell wall constituents. Journal of the association of agricultural chemists, 50 – 55.
- Van Soest, P.J., 1963. Use of detergents in the analysis of fibrous feeds. II – A rapid method for the determination of fibre and lignin. J. Assoc. off. Anal. Chem. 46 (1), 829-835.
- Wilshusen, J.H., Hettiaratchi, J.P.A., De Wisscher, A., Saint-Fort, R., 2004. Methane oxidation and formation of EPS in compost: effect of oxygen concentration. Environmental Pollution 129 (2), 305-314.
- Witter, E., Lopez-Real, J., 1987. The potential of sewage sludge and composting in a nitrogen recycling strategy for agriculture. Biol. Agric. Hort. 5, 123.
- Yu, K.W., Wang, Z.P., Vermosen, A., Patrick, J.R.W.H., Van Cleemput, O., 2001. Nitrous oxide and methane emissions from different soil suspensions: effect of soil redox status. Biol. Fertil. Soils 34, 25-30.